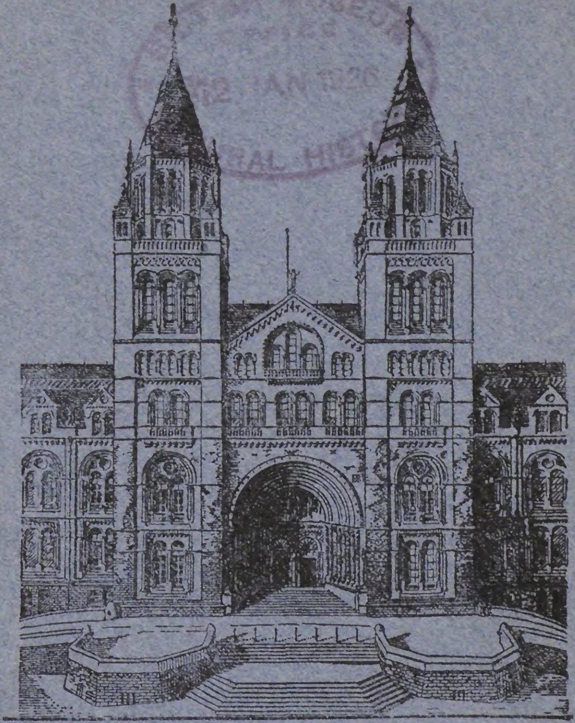
British Museum (Natural History)

12 JAN 1926



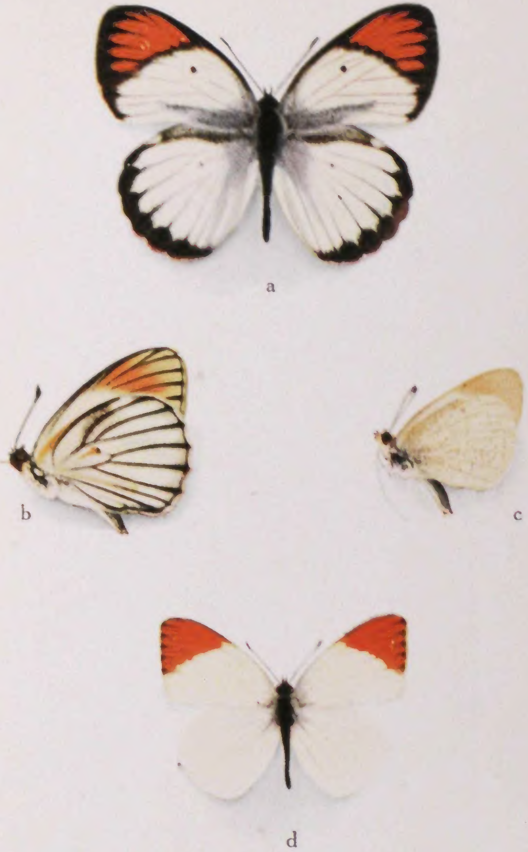
EXOTIC BUTTERFLIES

SERIES No. 5

5 *Cards in Colour*

Set E 30

One Shilling



EXOTIC BUTTERFLIES

Teracolus achine

(a) and *(b)* wet season form

(c) and *(d)* dry season form

Natural size

BRITISH MUSEUM (NATURAL HISTORY)

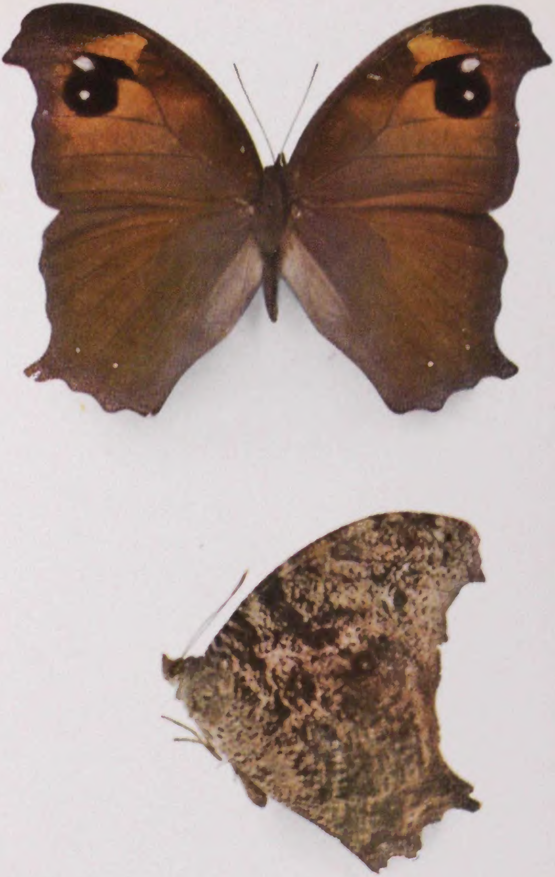
E 166

Produced by W. F. Sedgwick, Limited

POST CARD

THIS SPACE MAY BE USED FOR
CORRESPONDENCE

(For Address Only)



EXOTIC BUTTERFLIES
Melanitis leda
Dry season form
Natural size
BRITISH MUSEUM (NATURAL HISTORY)

E 168

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POST CARD

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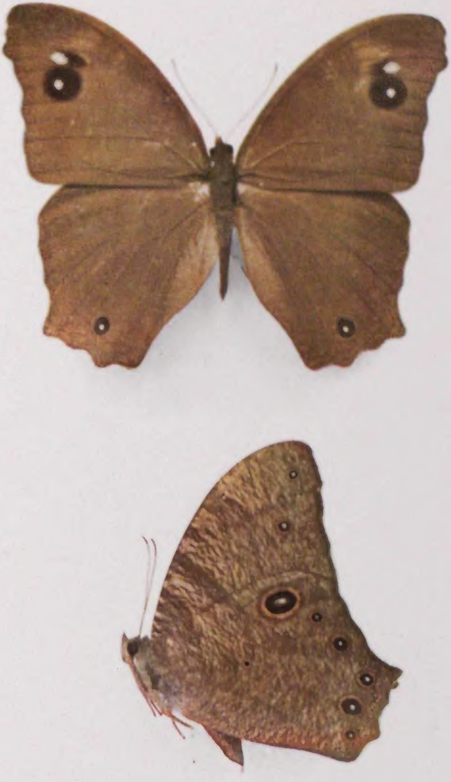

EXOTIC BUTTERFLIES
Melanitis leda
Wet season form
Natural size
British Museum (Natural History)

E 167

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POST CARD

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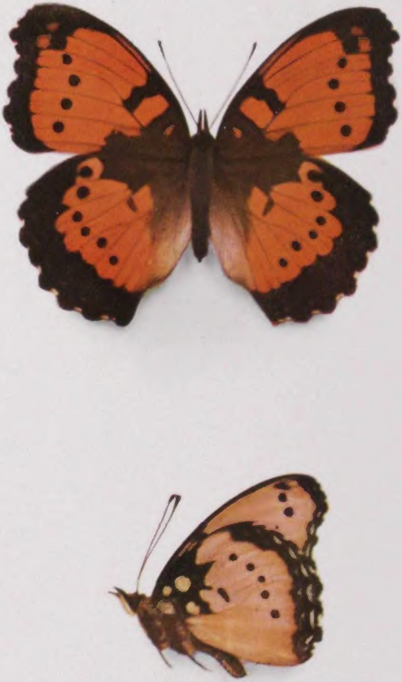

EXOTIC BUTTERFLIES

Precis octavia

Wet season form (*sesamus*)

Natural size

BRITISH MUSEUM (NATURAL HISTORY)

E 169

Produced by W. F. Sedgwick, Limited

POST CARD

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POST CARD

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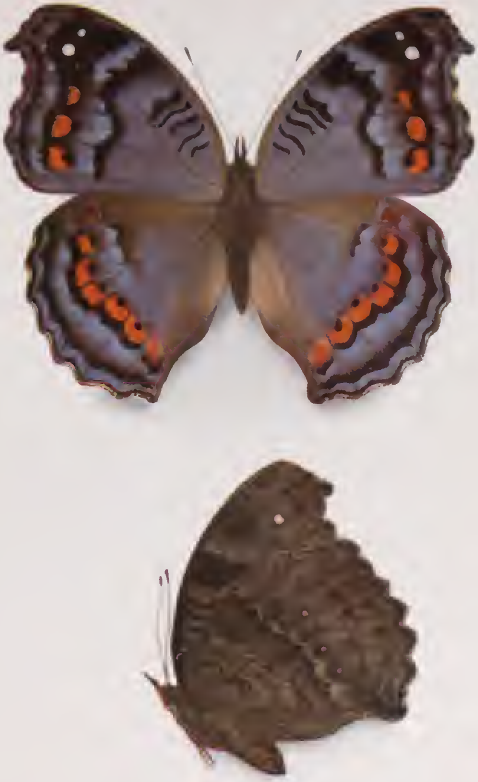

EXOTIC BUTTERFLIES

Precis octavia

Dry season form *(octavia)*

Natural size

British Museum (Natural History)

E 170

Produced by W. F. Sedgwick, Limited

BRITISH MUSEUM (NATURAL HISTORY).

EXOTIC BUTTERFLIES.

Series No. 5.

Seasonal Variation.

On the post cards forming this set are shown three butterflies which exhibit to a remarkable degree that variation between their different generations, from season to season, which in its most marked form is known as seasonal dimorphism. Although all three species figured come from tropical regions, the phenomenon they illustrate is by no means restricted to the tropics, and was, indeed, first recognised a century ago in European butterflies. If the post cards illustrating the spring and summer broods of our British Whites, the Large White (E112), the Small White (E113), and the Green-veined White (E114), be examined, it will at once be remarked that there is in each case a very considerable difference between the wing markings of the two broods. Individuals of the spring broods of the first two species are both smaller in size and less heavily marked with black on the upper side than those belonging to their summer broods, but the opposite applies to the under sides of the hind wings. Many of the older entomologists regarded these differing broods as distinct species, and even described and named them accordingly, although a few simple breeding experiments would at once have shown their true relationship.

It is not to be wondered at perhaps that if such confusion could arise over butterflies so common as these Whites, still greater confusion arose when collections began to arrive in this country from regions where seasonal climatic changes are more pronounced than in Europe. One of the most variable of these foreign species is illustrated on the first card.

E 166. *Teracolus achine.* This species ranges practically throughout tropical and sub-tropical Africa with the exception of the Congo Basin. The specimens figured on the post card actually come from South Africa, and show the extreme forms. By careful collecting, or by breeding throughout a period of some months, it should be possible to obtain a complete series of intergrades linking together these very dissimilar forms. This has, in fact, been done, and one form bred from the other. It is worth notice that in this species—and throughout the genus *Teracolus*—the small individuals occur during the dry, and the large and strongly marked forms during the wet season, the divergence being greatest in those parts of Africa, e.g., parts of Natal and Rhodesia, and the Northern edge of the tropical zone, where the greatest seasonal changes occur. To the very marked seasonal variation exhibited by *Teracolus achine* there is added a considerable degree of local variation as well, so it is no wonder that until comparatively recently, in fact until very large numbers of the insect had been received from all parts of its range, it had been looked upon not as a single species but as consisting of at least a dozen different species.

E 167 and E 168, *Melanitis leda.* The Common Evening Brown, to give this butterfly the English name recently proposed for it on account of its liking for the dusk, belongs to the family Satyridæ, and has a distribution vastly greater than *Teracolus achine,* the range of which, in Africa, it completely overlaps. Thence it extends to Madagascar, the Seychelles, the whole of tropical Asia, the East Indies, Northern Australia, and out into the Pacific Isles. The type of seasonal variation it exemplifies—namely, small size and presence of eye-spots in the wet season, particularly on the under side, and large size and absence of eye-spots in the dry season—is typical of the whole Satyrid family. From observations in the field the species appears to react very quickly to climatic changes; possibly, like the Pieridæ, it breeds very rapidly. The amount of seasonal difference it exhibits varies considerably, as one would expect in a species living under such a variety of climates. In Java, for example, where there is no marked dry season, the dry form is very rarely met with, and the same applies to other islands of the East Indies. In parts of Central Africa, on the other hand, as shown by the specimens on the post cards, the maximum seasonal climatic changes are accompanied by the maximum seasonal variation in the appearance of the butterfly.

Precis octavia (E 169 and E 170) is a common African butterfly occurring almost throughout the tropical and sub-tropical regions. The general pattern of its upper side is made up of a mixture of blue and black markings, with a narrow band of red across both wings (E170). This form only occurs in the dry season, and wherever it is found is replaced in the wet season by the butterfly shown on the other post card (E169) and formerly known as *Precis sesamus*, which is smaller, red and black in colour, and without any trace of blue. Both forms are common. On very rare occasions butterflies have been met with which show a mixture of these two types, and until about the year 1900 these, not unnaturally, were considered to be natural hybrids, and indeed the fact that on one or two rare occasions the two forms (*sesamus* and *octavia*) had been taken paired was adduced as evidence in support of this view. When it was first suggested that these two butterflies were in reality only seasonal forms of one species, most entomologists frankly refused to believe it possible. Proof was forthcoming, however, before long: for in 1898, the *sesamus* (red) form was bred from eggs laid by females of the *octavia* (blue) form.

The particular species shown on the last two post cards has been selected because its forms show a more striking contrast than is exhibited by any other known species. The genus *Precis* is, indeed, remarkable for the amount of seasonal dimorphism exhibited by its species. In the Pieridæ and Satyridæ, although the extreme wet and dry season forms are very dissimilar, yet it is possible by careful collecting or breeding to find all the intermediate links. In the genus *Precis*, however, there is true dimorphism. The insect assumes either a definite dry or wet form, and it is extremely rare to find individuals intermediate in character.

It will be noticed too that the under sides of *sesamus* and *octavia* show an even greater dissimilarity in pattern, if not in colour, than the upper sides. The wet form is boldly marked with the pattern of the upper side; the dry form is, however, a very fine example of the "dead-leaf" or procryptic pattern, eminently suitable for disguising the true nature of its wearer. The generally accepted explanation of this difference is that during the dry season, when insects are scarce, but the numbers of insectivorous animals much as in the wet season, a bold colour-scheme such as characterizes the wet season form (*sesamus*) would be such a handicap to the species that it would be rapidly exterminated. It may be, therefore, that but for the acquisition of this protective guise the insect would never survive the dry season at all.

The difference between the two forms in size and weight is, of course, accounted for by the difference in the condition of the food in the alternating wet and dry seasons.

Set E 30. *December*, 1925.